

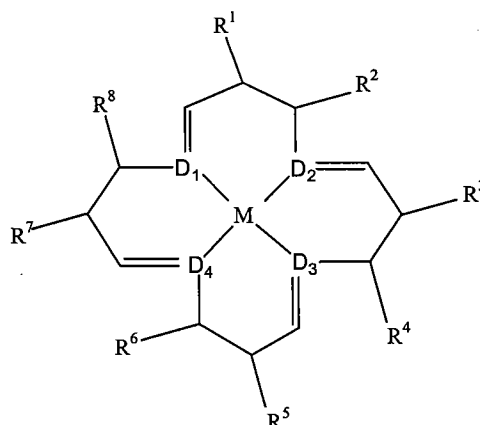
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): A polymer comprising the reaction product of:

- (a) a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃ and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties;

- (b) monomer; and

- (c) optional crosslinking agent,

wherein said polymer undergoes a detectable color change upon exposure to a biogenic amine.

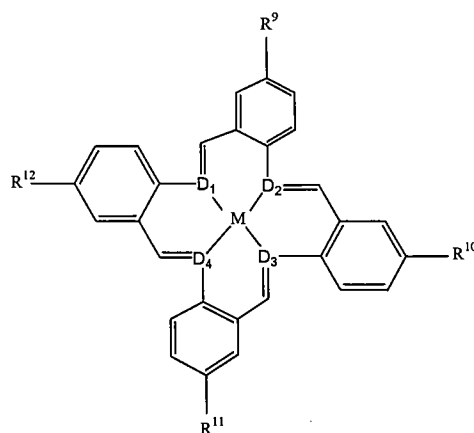
Claim 2 (original): The polymer of claim 1 wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 3 (original): The polymer of claim 1 wherein in the macrocyclic transition metal complex M is nickel(II) or palladium (II) and D₁, D₂, D₃, and D₄ are N.

Claim 4 (original): The polymer of claim 2 wherein in the macrocyclic transition metal complex M is nickel(II) or palladium (II) and D₁, D₂, D₃, and D₄ are N.

Claim 5 (original): The polymer of claim 1 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine.

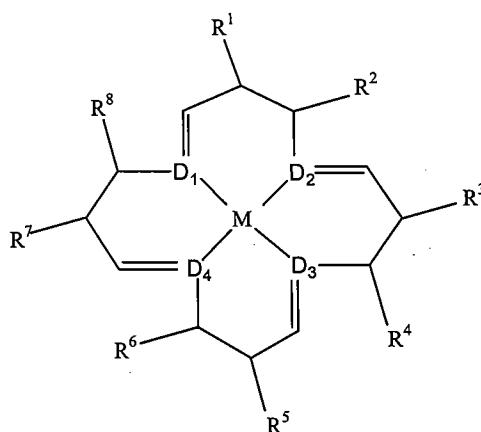
Claim 6 (original): The polymer of claim 1 wherein the a macrocyclic transition metal complex is of the formula:



wherein M is nickel(II) or palladium(II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styrene, vinyl, amine or carboxyl.

Claim 7 (original): A molecularly imprinted polymer formed by the steps of:

- (a) providing the reaction product of (i) a four-coordinate a macrocyclic transition metal complex of the general formula:



- wherein M is a transition metal ion; D₁, D₂, D₃ and D₄ can be the same or different and can be N or P; and each of R₁ and R₂, R₃ and R₄, R₅ and R₆, and R₇ and R₈, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties, and (ii) a target molecule comprising biogenic amine, said reaction product possessing a four or six-coordinate geometry;
- (b) copolymerizing the reaction product of step (a) with monomer and crosslinking agent to form a polymer; and
 - (c) removing the target molecule from the polymer to provide a molecularly imprinted polymer which selectively binds to the target molecule and undergoes a detectable color change when the target molecule binds thereto.

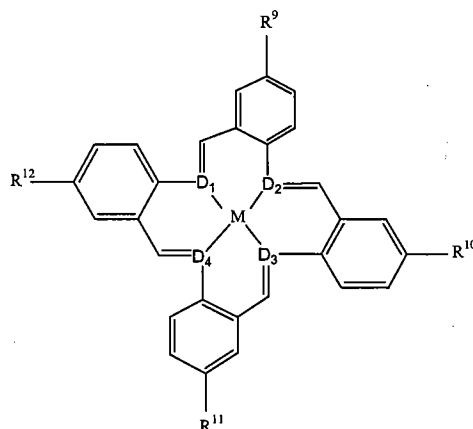
Claim 8 (original): The molecularly imprinted polymer of claim 7 wherein the aromatic groups to which R₁ and R₂, R₃ and R₄, R₅ and R₆, and R₇ and R₈ can form when taken together with the adjacent carbon atoms to which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 9 (original): The molecularly imprinted polymer of claim 7 wherein in the macrocyclic transition metal complex M is nickel(II) or palladium (II) and D₁, D₂, D₃, and D₄ are N and wherein the reaction product formed in step (a) possesses a four coordinate geometry.

Claim 10 (original): The molecularly imprinted polymer of claim 7 wherein in the macrocyclic transition metal complex M is iron (II) and D₁, D₂, D₃, and D₄ are N and wherein the reaction product formed in step (a) possesses a six coordinate geometry.

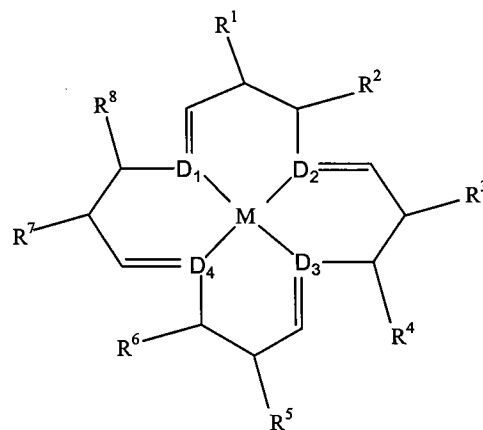
Claim 11 (currently amended): The molecularly imprinted polymer of claim 7 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine, ~~we should claim Fe (II) too, since it would be the metal of choice for histamine.~~

Claim 12 (original): The molecularly imprinted polymer of claim 7 wherein the a macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy.

Claim 13 (original): A process for preparing a polymer comprising:
copolymerizing a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties, monomer and optional crosslinking agent, wherein said polymer undergoes a detectable color change upon exposure II to a biogenic amine.

Claim 14 (original): The process of claim 13 wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to

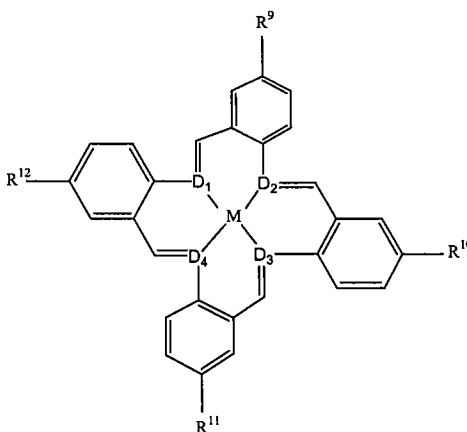
which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 15 (original): The process of claim 13 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N..

Claim 16 (original): The process of claim 14 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 17 (original): The process of claim 13 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine.

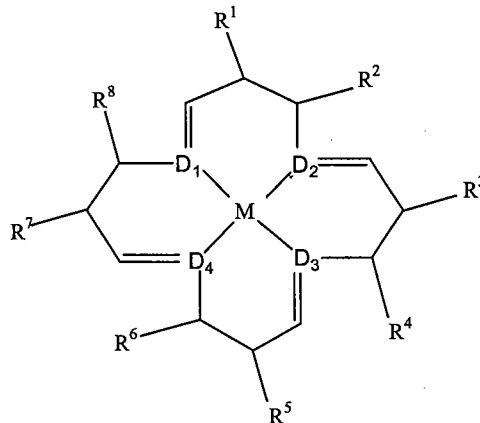
Claim 18 (original): The process of claim 13 wherein the a macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy..

Claim 19 (original): A process for preparing a molecularly imprinted polymer which comprises:

- (a) providing the reaction product of (i) a four-coordinate a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties, and (ii) a target molecule comprising biogenic amine, said reaction product possessing a six-coordinate geometry;

- (b) copolymerizing the reaction product of step (A) with monomer and crosslinking agent to form a polymer; and
- (c) removing the target molecule from the polymer to provide a molecularly imprinted polymer which selectively binds to the target molecule and undergoes a detectable color change when the target molecule binds thereto.

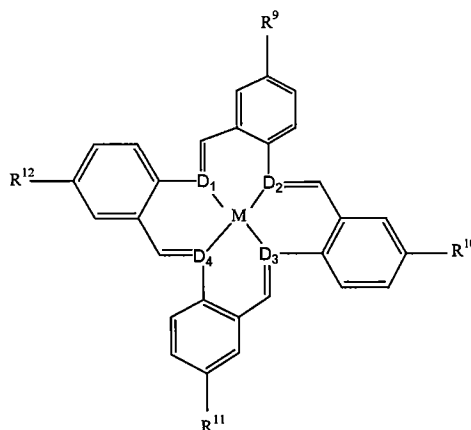
Claim 20 (original): The process of claim 19 wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 21 (original): The process of claim 19 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 22 (original): The process of claim 20 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

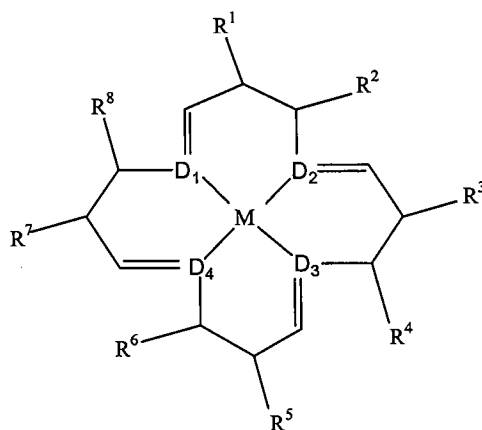
Claim 23 (original): The process of claim 19 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine.

Claim 24 (original): The process of claim 19 wherein the a macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy.

Claim 25 (currently amended): A sensor for detecting the presence of biogenic amine in, on or in association with a fluid which comprises a polymer and a support structure having a surface, the polymer being attached to the support structure as a coating thereon, wherein the polymer is formed by the steps of: copolymerizing a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent

carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties, monomer and crosslinking agent, wherein said polymer undergoes a detectable color change upon exposure to a biogenic amine ~~diamine~~.

Claim 26 (original): The sensor of claim 25 wherein the structure comprises a plastic sheet, film or tray which is utilized in the packaging of food products.

Claim 27 (original): The sensor of claim 25 wherein the structure is an optical fiber.

Claim 28 (original): The sensor of claim 25 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine.

Claim 29 (currently amended): The sensor of claim 25 wherein the macrocyclic transition metal complex is first reacted with a target molecule comprising a biogenic amine ~~diamine~~ prior to copolymerizing the complex, monomer and crosslinking agent, and thereafter the target molecule is removed from the polymer to provide a molecularly imprinted polymer which selectively binds to the target molecule and undergoes a detectable color change when the target molecule binds thereto.

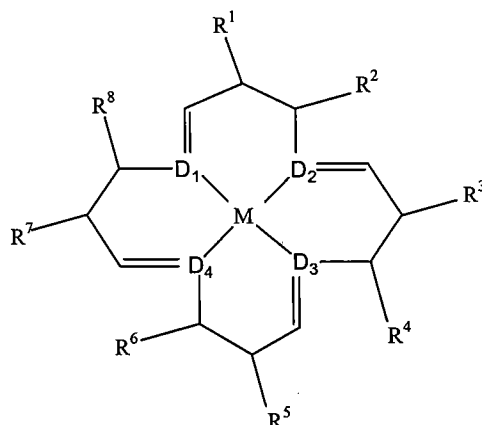
Claim 30 (original): The sensor of claim 25 wherein the color change is visible.

Claim 31 (original): The sensor of claim 25 wherein the color change is from yellow to crimson when the transition metal ion is nickel (II) or iron (II) and is from green to purple when the transition metal ion is palladium (II).

Claim 32 (original): A food container comprising the polymer of claim 1.

Claim 33 (original): A food container comprising the polymer of claim 7.

Claim 34 (original): A method for detecting a biogenic amine, comprising: providing a polymer comprising the reaction product of a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties, monomer and crosslinking agent, exposing the polymer to a food product or body fluid; and, detecting any change in color by the polymer, said detected change being indicative of the presence of biogenic amine in, on or in association with the food product or body fluid.

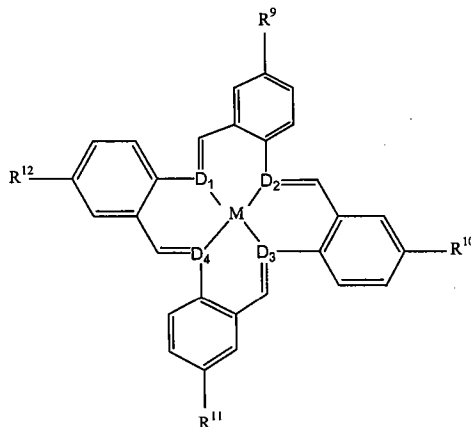
Claim 35 (original): The method of claim 34 wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 36 (original): The method of claim 34 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 37 (original): The method of claim 35 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 38 (original): The method of claim 34 wherein the biogenic amine is selected from the group consisting of cadaverine, putrescine and histamine.

Claim 39 (original): The method of claim 34 wherein the a macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy.

Claim 40 (currently amended): The method of claim 34 wherein the macrocyclic transition metal complex is first reacted with a target molecule comprising biogenic amine ~~diamine~~ prior to copolymerizing the complex, monomer and crosslinking agent, and thereafter the target molecule is removed from the polymer to provide a molecularly imprinted polymer which selectively binds to the target molecule and undergoes a detectable color change when the target molecule binds thereto.

Claim 41 (original): The method of claim 34 wherein the color change is visible.

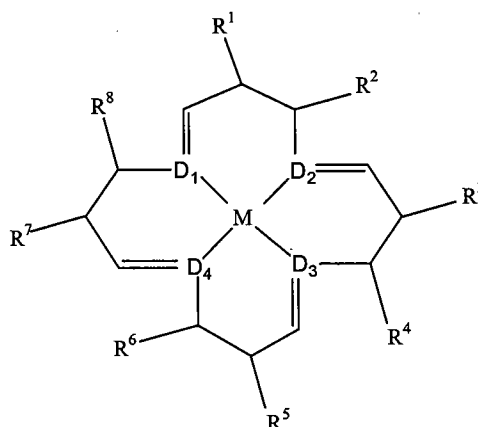
Claim 42 (currently amended): The method of claim 34 ~~25~~ wherein the color change is from yellow to crimson when the transition metal ion is nickel (II) or iron (II) and is from green to purple when the transition metal ion is palladium (II).

Claim 43 (canceled)

Claim 44 (currently amended): The device of claim 43 ~~45~~ wherein the filtration unit possesses a pore size to filter impurities greater than one micron.

Claim 45 (currently amended): ~~The device of claim 43~~ A device for detecting a biogenic amine in a fluid comprising:

- (a) a compartment having an inlet traversed by the fluid;
- (b) a filtration unit mounted in the compartment downstream from the inlet and configured to filter out impurities in the fluid from the biogenic amine; and,
- (c) a biogenic amine-detecting material located in the compartment downstream from the filtration unit to indicate the presence of the biogenic amine wherein said biogenic amine-detecting material undergoes a detectable color change upon exposure to a biogenic amine wherein the biogenic amine-detecting material comprises a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties.

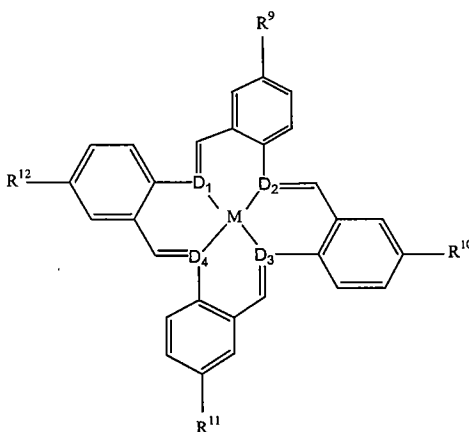
Claim 46 (currently amended): The device of claim 43 ~~45~~ wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 47 (currently amended): The device of claim 43 ~~45~~ wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 48 (original): The device of claim 46 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 49 (currently amended): The device of claim ~~43~~45 wherein the biogenic amine to be detected is selected from the group consisting of cadaverine, putrescine and histamine.

Claim 50 (currently amended): The device of claim ~~43~~45 wherein the macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy.

Claim 51 (original): The device of claim 45 wherein the biogenic amine-detecting material further comprises an inert oxide selected from the group consisting of silica gel, titanium dioxide, titania oxide, cellulose and alumina.

Claim 52 (currently amended): The device of claim ~~43~~45 which is a pipette or a syringe.

Claim 53 (original): The device of claim 51 which is a pipette or a syringe.

Claim 54 (currently amended): The device of claim ~~43~~45 wherein the fluid is associated with a food product.

Claim 55 (currently amended): The device of claim ~~43~~45 wherein the fluid is a body fluid.

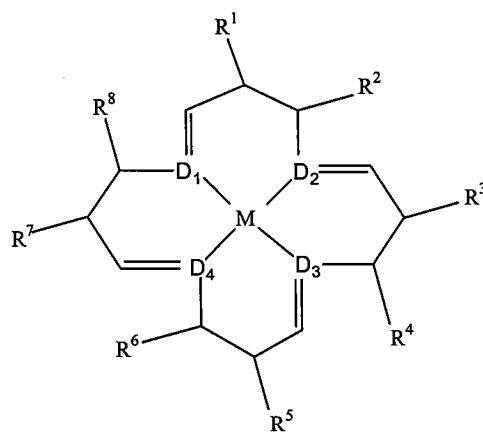
Claim 56 (currently amended): A test kit for determining the presence or absence of a biogenic amine in a representative sample of fluid, the kit comprising one or more of the devices of claim ~~43~~45.

Claim 57 (original): A test kit for determining the presence or absence of a biogenic amine in a representative sample of fluid, the kit comprising one or more of the devices of claim 45.

Claim 58 (original): A test kit for determining the presence or absence of a biogenic amine in a representative sample of fluid, the kit comprising one or more of the devices of claim 50.

Claim 59 (original): A test kit for determining the presence or absence of a biogenic amine in a representative sample of fluid, the kit comprising one or more of the devices of claim 51.

Claim 60 (original): A method for detecting the presence of biogenic amine in a fluid, comprising: exposing a fluid to a macrocyclic transition metal complex of the general formula:



wherein M is a transition metal ion; D₁, D₂, D₃, and D₄ can be the same or different and can be N or P; and each of R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸, taken together with the adjacent carbon atoms to which they are bonded, are joined together to form the same or different group selected from an aromatic or a cyclic group with at least one of the aromatic or cyclic groups possessing one or more polymerizable moieties; and, detecting any change in color by the macrocyclic transition metal complex, said detected change being indicative of the presence of biogenic amine in the fluid.

Claim 61 (original): The method of claim 60, wherein the aromatic groups to which R¹ and R², R³ and R⁴, R⁵ and R⁶, and R⁷ and R⁸ can form when taken together with the adjacent carbon atoms to

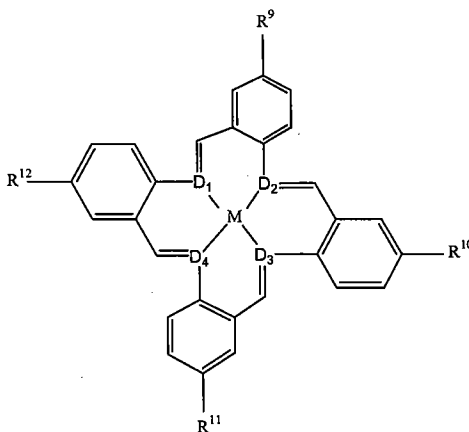
which they are bonded and joined together are selected from the group consisting of benzene rings, naphthalene rings, anthracene rings, phenanthrene rings, and thiophene rings.

Claim 62 (original): The method of claim 60 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 63 (original): The method of claim 61 wherein in the macrocyclic transition metal complex M is nickel(II), palladium (II) or iron (II) and D₁, D₂, D₃, and D₄ are N.

Claim 64 (original): The method of claim 60 wherein the biogenic amine to be detected is selected from the group consisting of cadaverine, putrescine and histamine.

Claim 65 (original): The method of claim 60 wherein the macrocyclic transition metal complex is of the formula:



wherein M is nickel(II), palladium(II) or iron (II), D₁, D₂, D₃, and D₄ are N, and R⁹, R¹⁰, R¹¹ and R¹² are styryl, vinyl, amine, carboxyl, hydroxyl, halomethyl, dithioester, carboxylic acid, acid chloride or peroxy.

Claim 66 (original): The method of claim 60 wherein the macrocyclic transition metal complex further comprises conjugate bases of a fluorescent agent compound.

Claim 67 (original): The method of claim 66 wherein the fluorescent agent compound is a fluorophore.

Claim 68 (original): The method of claim 67 wherein the fluorophore is selected from the group consisting of 9-anthracenecarboxylic acid, 1-naphthoic acid and carboxylic acid containing fluorosceins

Claim 69 (original): The method of claim 60 wherein the fluid is associated with meat or fish.

Claim 70 (original): The method of claim 60 wherein the fluid is a body fluid.